

PAKISTAN STANDARD

**JAMS (FRUIT PRESERVES) AND JELLIES
(1ST REVISION)**



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PAKISTAN STANDARD SPECIFICATION FOR JAMS (FRUIT PRESERVES) AND JELLIES (1st REV.)

0. FOREWORD

- 0.1 This Pakistan Standard was adopted by the Pakistan Standards & Quality Control Authority, Standards Development Centre on **30.03.2010** after the draft finalized by the Fruit and Vegetable Products Technical Committee, had been approved by the National Standards Committee for Agriculture and Food Products.
- 0.2 Pakistan Standards & Quality Control Authority laid down this standard specification on Jams Jellies (PS:2096) in 1989 now the committee felt it necessary to revise in the light of latest development made in the Industries.
- 0.3 In the preparation of this Standard the views of the manufacturers, consumers, Food technologists and testing authorities have been taken into consideration.
- 0.4 The assistance has been derived from CAC/WHO standard 296 is acknowledged with thanks.
- 0.5 For the purpose of deciding whether a particular requirements of this Standard is complied with the final value, observed or calculated expressing the result of a test analysis, shall be round off in accordance with PS: 103 for Methods of Rounding off Numerical Values; the number of significant places retained in the rounded off value shall be the same as that of the specified value in this Standard.

1 SCOPE

- 1.1 This Standard applies to jams, jellies, as defined in clause 2 below, and offered for direct consumption, including for catering purposes or for repacking if required. This Standard does not apply to:
- (a) products when indicated as being intended for further processing such as those intended for use in the manufacture of fine bakery wares, pastries or biscuits;
 - (b) products which are clearly intended or labeled as intended for special dietary uses;
 - (c) reduced sugar products or those with a very low sugar content;
 - (d) products where the foodstuffs with sweetening properties have been replaced wholly or partially by food additive sweeteners.
- 1.2 The terms, "preserve" or "conserve" are sometimes used to represent products covered by this Standard. The use of the terms "preserve" and "conserve" are thereby required to comply with the requirements for jam and/or extra jam as set out in this Standard.

2 DESCRIPTION

2.1 PRODUCT DEFINITIONS

Product Definition

Jam	is the product brought to a suitable consistency, made from the whole fruit, pieces of fruit, the unconcentrated and/or concentrated fruit pulp or fruit puree, of one or more kinds of fruit, which is mixed with foodstuffs with sweetening properties as defined in clause 2.2, with or without the addition of water.
Jellies	are the products brought to a semi solid gelled consistency and made from the juice and/or aqueous extracts of one or more fruits, mixed with foodstuffs with sweetening properties as defined in clause 2.2, with or without the addition of water.

2.2 OTHER DEFINITIONS

For the purposes of this Standard the following definitions shall also apply:

Product	Definition
Fruit	Means all of the recognized fruits and vegetables that are used in making jams, including but not limited to those fruits mentioned in this Standard, either fresh, frozen, canned, concentrated, dried, or otherwise processed and/or preserved which shall be sound, wholesome and clean and of suitable ripeness but free from deterioration and containing all its essential characteristics except that it has been trimmed, sorted and otherwise treated to remove any blemishes, bruises, toppings, tailings, cores, pits (stones) and may or may not be peeled.
Fruit Pulp	The edible part of the whole fruit, if appropriate less the peel, skin, seeds, pips, etc., which may have been sliced or crushed but which has not been reduced to a puree.
Fruit Puree	The edible part of the whole fruit, if appropriate, less the peel, skin, seeds pips and similar which has been reduced to a puree by sieving or other processes.
Aqueous extracts	The aqueous extract of fruits which subject to losses necessarily occurring during proper manufacture, contains all the water-soluble constituents of the fruit concerned.
Fruit Juices and concentrates	Products as defined in the Pakistan Standard for Fruit Juices and Nectars. PS:4973
Citrus fruit	Fruit of the Citrus L. family
Foodstuffs with sweetening properties	(a) All sugars as defined in the Pakistan Standard for Refine Sugar & White Sugar PS: 1822 (b) Sugars extracted from fruit (fruit sugars); (c) Fructose syrup; (d) Brown sugar; PS: 3409 (e) Honey as defined in the Pakistan Standard for Honey PS: 1934

3 ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 COMPOSITION

3.1.1 Basic Ingredients

- (a) Fruit ingredient, as defined in Clause 2.2, in quantities laid down in Clause 3.1.2 (a)–(b) below.
In the case of jellies the quantities where appropriate shall be calculated after deduction of the weight of water used in preparing the aqueous extracts.
- (b) Foodstuffs with sweetening properties as defined in Clause 2.2.

3.1.2 Fruit Content

The following percentage fruit content for jams and jellies specified at 3.1.2 (a) or (b) below shall apply :

- (a) The products, as defined in Clause 2.1, shall be produced such that the quantity of fruit ingredient used as a percentage of finished products shall be not less than 45% in general, with the exception of the following fruits:
- 35% for blackcurrants, mangoes, quinces, rambutan, redcurrants, rosehips, roselles, rowanberries and sea-buckthorns;
 - 30% for soursop and cranberry;
 - 25% for banana, cempedak, ginger, guava, jackfruit and sappota;
 - 23% for cashew apples;
 - 20% for durian;
 - 10% for tamarind;
 - 8% for passion fruit and other strong flavoured or high acidity fruits.
- When fruits are mixed together, the minimum content must be reduced in proportion to the percentages used.

or

- (b) The products, as defined in Clause 2.1, shall be produced such that the quantity of fruit ingredient used as a percentage of finished product shall be not less than 35% in general, with the exception of the following fruits:
- 25% for blackcurrants, mangoes, quinces, rambutan, redcurrants, rosehips, roselles, rowanberries and sea-buckthorns;
 - 20% for soursop and cranberry;
 - 16% for cashew apples;
 - 15% for banana, cempedak, guava, jackfruit and sappota;
 - 11% - 15% for ginger;
 - 10% for durian;
 - 6% for passion fruit, tamarind or other strong flavoured or high acidity fruits.
- When fruits are mixed together, the minimum content must be reduced in proportion to the percentages used.

In the case of Labrusca grape jam, grape juice and grape juice concentrate when added as optional ingredients, this may constitute a part of the required fruit content.

3.1.3 **Other Permitted Ingredients**

Any appropriate food ingredient of plant origin may be used in the products covered by this Standard. This includes fruit, herbs, spices, nuts, non alcoholic drinks and essential oils and vegetable edible oils and Halal fats (used as antifoaming agents), as long as they do not mask poor quality and mislead the consumer. For example, red fruit juice and red beetroot juice may be added to jams as defined in points 3.1.2 (a) and (b) made from gooseberries, plums, raspberries, redcurrants, rhubarb, rosehips, roselle or strawberries.

3.2 **SOLUBLE SOLIDS**

The soluble solids content for the finished products defined in clause 3.1.2 (a) – (b) shall in all cases be between 60 to 65% or greater.

AOAC 932.14C ISO 2173:2003(Codex General Method for processed fruits and vegetables)

3.3 **QUALITY CRITERIA**

3.3.1 **General Requirements**

The end product shall be of an appropriate gelled consistency, having normal colour and flavour appropriate to the type or kind of fruit ingredient used in the preparation of the mixture, while taking into account any flavor imparted by optional ingredients or any permitted colouring agents used. It shall be free from defective materials normally associated with fruits. Jelly and extra jelly shall be reasonably clear or transparent.

3.3.2 **Defects and Allowances for Jams**

The products covered by this Standard shall be largely free of defects such as plant material skins (if peeled), stones and pieces of stones and mineral matters. In the case of berry fruits, Dragon fruit and passion fruit, seeds shall be considered a natural fruit component and not a defect unless the product is presented as "seedless".

3.4 **CLASSIFICATION OF "DEFECTIVES"**

A container that fails to meet one or more of the applicable quality requirements as set out in clause 3.3.1 should be considered as a "defective".

3.5 **LOT ACCEPTANCE**

A lot should be considered as meeting the applicable quality requirements referred to in Clause 3.3.1 when the number of "defectives" as defined in Clause 3.4 does not exceed the acceptance number (c) of the appropriate sampling plan with an AQL of 6.5.

4 **FOOD ADDITIVES**

Only those food additive classes listed below are technologically justified and may be used in products covered by this Standard. Within each additive class only those food additives listed below, or referred to, may be used and only for the functions, and within limits, specified.

- 4.1 Acidity regulators, antifoaming agents, firming agents, preservatives and thickeners used in accordance with Table 3 of the Codex General Standard for Food Additives (codex standard 192) are acceptable for use in foods conforming to this Standard.

4.2 ACIDITY REGULATORS

INS No	Name of the Food Additive	Maximum Level
334; 335(i), (ii); 336(i), (ii); 337	Tartrates	3,000 mg/kg

4.3 ANTIFOAMING AGENTS

INS No	Name of the Food Additive	Maximum Level
900a	Polydimethylsiloxane	10 mg/kg

4.4 COLOURS

INS No	Name of the Food Additive	Maximum Level
100(i)	Curcumin	500 mg/kg
101(i), (ii)	Riboflavins	200 mg/kg
104	Quinoline Yellow	100 mg/kg
110	Sunset Yellow FCF	300 mg/kg
120	Carmines	200 mg/kg
124	Ponceau 4R (Cochineal Red A)	100 mg/kg
129	Allura Red AC	100 mg/kg
133	Brilliant Blue FCF	100 mg/kg
140	Chlorophyll	GMP
141(i), (ii)	Chlorophylls and Chlorophyllins, Copper Complexes	200 mg/kg
143	Fast Green FCF	400 mg/kg
150a	Caramel I-Plain	GMP
150b	Caramel II Caustic Sulfite Process	80,000 mg/kg
150c	Caramel III – Ammonia Process	80,000 mg/kg
150d	Caramel IV – Sulfite Ammonia Process	1,500 mg/kg
160a(i)	Carotenes, <i>beta</i> , (synthetic)	500 mg/kg singly or in combination
160a(iii)	Carotenes, <i>beta</i> (<i>Blakeslea trispora</i>)	
160e	Carotenal, <i>beta</i> -apo-8'-	
160f	<i>Beta</i> -apo-8'-Carotenoic acid, ethyl esters	
160a(ii)	Carotenes, <i>beta</i> (vegetable)	1,000 mg/kg
160d(i), 160d(iii)	Lycopenes	100 mg/kg
161b(i)	Lutein from <i>Tagetes erecta</i>	100 mg/kg
162	Beet Red	GMP
163(ii)	Grape Skin Extract	500 mg/kg
172(i)-(iii)	Iron Oxides	200 mg/kg

4.5 PRESERVATIVES

INS No	Name of the Food Additive	Maximum Level
200-203	Sorbates	1,000 mg/kg
210-213	Benzoates	1,000 mg/kg
220-225, 227, 228, 539	Sulfites	50 mg/kg as residual SO ₂ in the end product, except when made with sulfited fruit when a maximum level of 100 mg/kg is permitted in the end product.

4.6 **FLAVOURINGS**

The following flavourings are acceptable for use in foods conforming to this Standard when used in accordance with good manufacturing practices PS: 1825 and in compliance with the Codex Guidelines for the Use of Flavourings (CAC/GL 66): natural flavouring substances that are extracted from the named fruits in the respective product; natural mint flavour; natural cinnamon flavour; vanillin, vanilla or vanilla extracts.

5 **CONTAMINANTS**

5.1 The products covered by this Standard shall comply with the maximum levels of the Codex General Standard for Contaminants and Toxins in Food and Feed (CODEX STAN 193).

5.2 The products covered by this Standard shall comply with the maximum residue limits for pesticides PS: 2023 for maximum limits for Pesticides residues.

6 **HYGIENE**

6.1 It is recommended that the products covered by the provisions of this Standard be prepared and handled in accordance with the appropriate clause of the Pakistan Standard for Code of Practice – General Principles of Food Hygiene PS:3944 and other relevant Pakistan texts such as codes of hygienic practice and codes of practice.

6.2 The products should comply with any MICROBIOLOGICAL CRITERIA established in accordance with the Principles for the Establishment and Application of MICROBIOLOGICAL CRITERIA for Foods (CAC/GL 21-1997) or may apply following limits.

Microbiological Limits

S.#	Organism	Limites
1	Coliforms	Less than 10 cfu/gram
2	Yeast & Molds	Less than 10 cfu/gram

7 **WEIGHTS AND MEASURES**

7.1 **FILL OF CONTAINER**

7.1.1 **Minimum Fill**

The container should be well filled with the product which should occupy not less than 90% (minus any necessary head space according to good manufacturing practices).of the water capacity of the container. The water capacity of the container is the volume of distilled water at 20 °C which the sealed container will hold when completely filled. CAC/RM 46-1972 (Codex General Method for processed fruits and vegetables) see Annexure -A

7.1.2 **Classification of "Defectives"**

A container that fails to meet the requirement for minimum fill of clause 7.1.1 should be considered as a "defective".

7.1.3 **Lot Acceptance**

A lot should be considered as meeting the requirement of clause 7.1.1 when the number of "defectives", as defined in clause 7.1.2, does not exceed the acceptance number (c) of the appropriate sampling plan with an AQL of 6.5.

8 **LABELLING**

In accordance with PS: 1485 for the Labelling of Prepackaged Foods.

8.1 **LABELLING OF NON-RETAIL CONTAINERS**

Information for non-retail containers shall be given either on the container or in accompanying documents, except that the name of the product, lot identification, and the name and address of the manufacturer, packer, distributor or importer, as well as storage instructions, shall appear on the container. However, lot identification, and the name and address of the manufacturer, packer, distributor or importer may be replaced by an identification mark, provided that such a mark is clearly identifiable with the accompanying documents.

9. **PACKING AND MARKING**

PACKING — The product shall be packed in hygienically suitable containers.

MARKING — Each container shall be clearly marked or labelled with following particulars.

- a) Name of the product*.
- b) Name and address of the manufacturer.
- c) Net weight /volume (Average weight principle will be applicable).
- d) Date of manufacture & expiry.
- e) List of Ingredients** (Halal).
- f) Pakistan Standard number, Mark & Licence number.
- g) Batch or code number.

*The names of the products shall be:

In the case of Clause 3.1.2 (a):

- Jam (or preserve or conserve, if appropriate)
- Extra Jam (preserve or conserve, if appropriate)
- High Fruit Jam (preserve or conserve, if appropriate)
- Jelly;
- Extra Jelly.

In the case of Clause 3.1.2 (b):

- Jam (or preserve or conserves or fruit spread);
- Jelly (or fruit spread).

*The name of the product shall provide an indication of the fruit(s) used in descending order of weight of the raw material used. In the case of products made with three or more different fruits the alternative phrase "mixed fruit" or similar wording or by the number of fruits may be used.

*The name of the product may provide an indication of the variety of fruit e.g. "Victoria" plum and /or may include an adjective describing the character e.g. "seedless", "shredless".

**The products covered by this Standard may also give an indication of the fruit ingredient content in the form of "prepared with X g of fruit per 100 g" and the total sugar content with the phrase "total sugar content X g per 100 g". If an indication of fruit content is given this should relate to the quantity and type of fruit ingredient used in the product as sold with a deduction for the weight of any water used in preparing the aqueous extracts.

**If ascorbic acid is added to preserve colour, its presence shall be declared in the list of ingredients as ascorbic acid.

10. **SAMPLING**

PS: 630 for Methods of Sampling and Test for Fruits & Vegetable Products shall apply.

11. **METHODS OF ANALYSIS**

The relevant Testing Method of ISO, CAC and of other internationally recognized standard methods may be taken into account for analysis purpose.

Annexure-A

**DETERMINATION OF WATER CAPACITY OF CONTAINERS
(CAC/RM 46-1972)****1 SCOPE**

This method applies to glass containers *

2 DEFINITION

The water capacity of a container is the volume of distilled water at 20°C which the sealed container will hold when completely filled.

3 PROCEDURE

3.1 Select a container which is undamaged in all respects.

3.2 Wash, dry and weigh the empty container.

3.3 Fill the container with distilled water at 20°C to the level of the top thereof, and weigh the container thus filled.

4.0 CALCULATION AND EXPRESSION OF RESULTS

Subtract the weight found in 3.2 from the weight found in 3.3. The difference shall be considered to be the weight of water required to fill the container. Results are expressed as ml of water.

*For determination of water capacity in metal containers the reference method is ISO 90.1:1986